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ABSTRACT

Research on the quality of foreign medical graduates (FMG) in terms of their competence or manifest abilities as measured by examinations, and their performance or actual behavior is briefly reviewed. In addition, some of the methodological problems that make research on foreign medical graduates difficult to interpret are critiqued, and implications based on the limitations of FMG research are discussed. FMGs consistently do not score as well as U.S. medical graduates on written competence examinations. Differences in FMG performance on behavioral measures illustrate mixed findings with some studies showing poorer performance and other showing no difference. Some of the studies illustrate that FMGs are not a homogeneous group. FMGs from different countries and medical schools show variance in their competence and performance. Additionally, study findings illustrate that there are several different variables other than place of medical school that also seem to affect performance and competence (e.g., quality of residence training, number of attempts on an examination). Criticisms regarding research methodology center on an outcome rather than a process orientation, insensitivity to the heterogeneity of FMGs, a lack of complexity in data analysis procedures, and indeterminate validity of outcome measures. Processes that affect examination scores are identified that should be assessed including: the quality of medical training, effort put into training, barriers to assimilating training, mental set at the time of the examination, and experience with taking examinations. (SW)

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The Competence and Performance of Foreign Medical Graduates: Research and Implications*

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The Competence and Performance of Foreign Medical Graduates: Research and Implications

Introduction

Graduates of foreign medical schools have historically played an important role in the health care system of the United States. Physician shortages during the last 30 years have only been alleviated by the influx of foreign medical graduates (FMG's) into our health care system (Morgan, 1981). As of 1978 there were 91,351 FMG's in the U.S. This group accounted for 21% of the physician population. Of these, approximately 75% were engaged in patient care with the remainder being involved with medical teaching, administration, research, or other areas (Glandon, 1980).

This large number of practicing physicians who have not gone through their medical schooling under the regulated and accredited process enforced in the United States has been a subject of considerable concern within the past decade. Whether or not physicians trained outside the U.S. are competent and can provide quality care to their patients is an issue that has increasingly come under investigation.

The investigation of FMG competence and performance has resulted in some discrepant findings. The purpose of this paper is to examine some of these findings, and then comment on the problems and implications related to these findings. The first section of the paper will present a brief synopsis of the research that has previously been done on the quality of FMG's in terms of their competence or manifest abilities as measured by examinations, and their performance or actual behavior.

The second section provides a critique of some of the methodological problems that make research on foreign medical graduates difficult to interpret. The final section discusses some of the implications that can be made based on the limitations of FMG research.

Research on FMG Quality

The competence of foreign medical graduates has been measured by several different written examinations. Weinberg (1978) cites significantly lower pass rates on the ECFMG (Educational Council on Foreign Medical Graduates) examination for Americans who enroll in foreign medical schools (60% failure vs 2.3% expected U.S. failure). DHEW presents summary statistics from the ECFMG examination showing an average pass rate of 38% for FMG's. This would be compared to the expected pass rate of 98% for USMG's (U.S. medical graduates). When the percent pass rate of FMG's taking the ECFMG in 1972 was examined, major differences were found for different foreign countries of medical instruction (DHEW, 1974). The figures cited by DHEW for FMG performance on State Licensure Examinations of 1972 was an 89% pass rate for USMG's and a 64% pass rate for FMG's. An examination of pass rates for FMG's indicates that not only do the rates differ by country of medical school, but that they vary greatly within each country itself (AMA, 1973). Performance on board certifying examinations by FMG's has also been investigated. Results show that FMG's uniformly have higher failure rates across specialties and across type of examination (Hechel, 1979). Differences in FMG performance by country of birth, country of medical school, English as a primary language, number of attempts on the examination, and quality of residency training program has also been found (Rudy and Kulieke, 1981).

In an examination of the performance of FMG's in practice, research studies have investigated several aspects of performance. Using hospital audits to determine physician quality of care as measured by physician performance on taking patient histories and physical examinations, Saywell found no significant differences in overall performance by USMG's and FMG's by house staff and attending physicians (Saywell, 1979, 1980). With technical quality and utilization of medical care resources as the performance variable, no consistent patterns of performance differences between USMG's and FMG's were found (Rhee, 1977). FMG pediatric residents who were rated on twenty performance characteristics by faculty demonstrated poorer ratings on all characteristics than did USMG's (Sheehan, 1980). In a study of the numbers of FMG vs. USMG malpractice claims, no differences between the two groups were found (Heilmann, 1978).

From the research on the competence and performance of FMG's several interesting trends can be identified. First, FMG's consistently do not score as well as USMG's on the written competence examinations. Second, differences in FMG performance on behavioral measures illustrate mixed findings with some studies showing poorer performance and others showing no difference. Third, some of the studies illustrate that FMG's are not a homogeneous group. FMG's from different countries of medical school and birth seem to show variance in their competence and performance. And fourth, study findings illustrate that there are several different variables other than place of medical school that also seem to be related to performance and competence. To further confuse matters, these variables (i.e., quality of residency training, number of attempts

on an examination) also seem to be related to graduation from a foreign medical school or a U.S. medical school.

Research Critique

Each study reported has its strengths and weaknesses in terms of methodological considerations. However, several general criticisms of this body of research can be made. These criticisms center around an outcome instead of a process orientation, insensitivity to the heterogeneity of FMG's, a lack of complexity in data analysis procedures and indeterminate validity of outcome measures.

A distinction between process and outcome data needs to be made in the FMG research. A score derived from a specific instrument represents an outcome measure or the end product that has resulted from a set of processes. The set of processes that results in an individual obtaining a certain score on an examination is complex. It consists of such factors as quality of medical training, effort put into training, barriers to assimilating training (such as foreign language, inadequate undergraduate training), mental set at the time of the examination, and experience with taking examinations. The study of these processes has been given little attention. This, in part, is due to the difficulty in studying the processes. However, it is only with an understanding of these processes that we can begin to comprehend what the outcome means. Do poor test scores by FMG's mean that foreign medical schools are providing an inferior education? Or does it mean that foreign medical graduates are not as practiced at taking a specific type of examination and therefore are performing more poorly? Or could it mean that they are slower in their comprehension of English and therefore they need

more time to take the examinations? There are dozens of possible variables that might be related to FMG's that need to be investigated in order to discover the role that each has in determining performance and competence. Building models of influences on competence and performance is a first step in beginning to understand the outcomes for FMG's on competence and performance measures.

In general, the research treats the foreign medical graduates as a homogeneous group. Although scores are sometimes broken down by specific country of medical school, the usual approach is to group all FMG's together when analyzing performance or competence data. This assumption of homogeneity of the FMG population is quite problematic, especially when a label of "less competent" or "poor performers" is being attached to them. Data from several of the studies on FMG's suggest that the foreign medical graduates from some countries score as well or better than USMG's. FMG's from other countries score much worse. This supports a contention that some variable(s) in addition to the general quality of medical schools outside the U.S. are affecting competence and performance on U.S. examinations. The assumption of homogeneity may be obscuring other variables that are in reality the causal agents of better or poorer performance of FMG's.

All too often pass/fail rates are used to show that there are differences between FMG's and USMG's. Pass/fail rates may provide an important means of comparing FMG/USMG competence and performance, yet it is a broad criteria and provides little guidance in determining whether or not there are specific areas, subtests, or items that are causing more difficulty to FMG's than others. It is possible that certain areas that

are stressed in U.S. medical schools and evaluated on U.S. examinations are different than those stressed in many foreign medical schools. An assumption that all countries have similar health care needs, and therefore they should train physicians in the same way, is one that needs to be considered when examining FMG performance.

Analysis approaches that consider the effects of more than one variable on FMG performance are needed. In particular, multivariate techniques that investigate the effects of more than one variable on scores would be useful. For example, if native language could be held constant when examining FMG performance, a better estimate of the true effects of foreign medical schools could be obtained. Other variables that might be identified as potentially influencing FMG performance could also be held constant in multivariate analyses providing a more indepth understanding of FMG performance.

The validity, or the degree to which an instrument measures what it purports to measure, has been given little consideration in most of the research cited. Whether a specific instrument measures competence in a particular area or another instrument measures performance has yet to be determined in most cases. Validity becomes extremely important when judgements are made about individuals or groups of individuals, as is the case with FMG's. If the intent of an examination is to certify that an individual is competent to practice, the instrument must have the capability of distinguishing between competent and incompetent performance, not distinguishing between something else such as the ability to understand English medical terminology or not. If it does not have that ability, then the judgements that we make about individuals are inappro-

priate. More studies of the validity of instruments are needed in order to alleviate this research problem and allow more certainty that the judgements that are made are accurate.

Implications

In an examination of FMG performance and competence, the research issues raised have several implications for the medical profession. First, it supports a contention that additional research on FMG's is necessary. However, the research that is needed is not the type that focuses on whether or not FMG's do better than USMG's. It is a more process-oriented research that examines the "whys" of FMG performance and is based on the assumption that FMG's are not a homogenous group. The factors that lead to discrepancies or no discrepancies in FMG/USMG competence and performance need to be ascertained. Secondly, the validity of measures used to examine competence and performance should be assessed. As long as there is uncertainty about what an instrument measures, the interpretations of research based on that instrument are suspect. This becomes particularly important when policy decisions need to be made with regards to the FMG's. Informed policy decisions should be based on an understanding of the strengths and weaknesses of the measures used in the research.

The state of research on FMG's illustrates an interesting problem that not only has relevance to the medical profession but to other professions as well. When a body of research identifies a problem, such as poor test performance of FMG's, but a comprehensive understanding of what is causing the problem is not ascertained, it is extremely difficult to make informed policy decisions at the individual school, licensure,

certification and national levels. What becomes apparent is that in order to make informed decisions, the next step is to gain a better understanding of the foreign medical graduate by building some models of process variables that are affecting physician competence and performance, and further to investigate the validity of the outcome measures being used. If research in these areas is carried out, the potential that exists to solve some of the current issues being raised at medical schools, licensing agencies, board certifying agencies, and government agencies, with regards to the foreign medical graduate is substantial.

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